I-94 DRAINAGE TUNNEL

Best Value - Design-Build (DB) Project

City of Detroit, Wayne County

Michigan Department of Transportation | Office of Major Projects

Sept. 8, 2025

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Safety Minute

Lithium-Ion Battery Safety Considerations

- Ensure that batteries, chargers, and the devices they are used in, are correct for each other. Use only manufacturer approved batteries and chargers.
- Check for a label/logo on the batteries, or the device they connect to, of a recognized testing laboratory such as Underwriters Laboratories or CSA Group Testing and Certification (among others).
- Review and follow the manufacturer's instructions for use, charging, and maintenance for each specific battery.
- Be sure to follow the manufacturers recommendations when charging batteries.
- Keep devices away from combustible items. Never charge on surfaces that can catch fire easily. Store in dry, cool locations, away from anything flammable.
- Inspect for signs of damage: bulging, cracking, hissing or popping sound, corrosion, leaking, odor, change in color, rising temperature, and even smoking. A damaged, defective, or recalled (DDR) battery should be handled safely for disposal.
- Do not throw li-ion batteries in the trash. When recycling, keep batteries segregated from other materials and either tape the battery terminals or place in a separate bag.
- If there is a fire, a small li-ion fire can be handled like any other combustible fire.
    - A typical ABC dry chemical fire extinguisher will be adequate.
    - Water also works as a fire extinguishing medium for these small batteries since the **lithium inside of these small batteries is a lithium salt electrolyte and not pure lithium metal.**

Introductions

Project Manager

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Kim Colburn

ICU Project Manager

Miranda Spare

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General Engineering Consultant

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Development Technical Resources

Assistant Construction Engineer

Joel Harkema

Subject Matter Experts

fishbeck

Hydraulics

SE

Geotechnical

WADE TRIM

Hydraulics Development Review

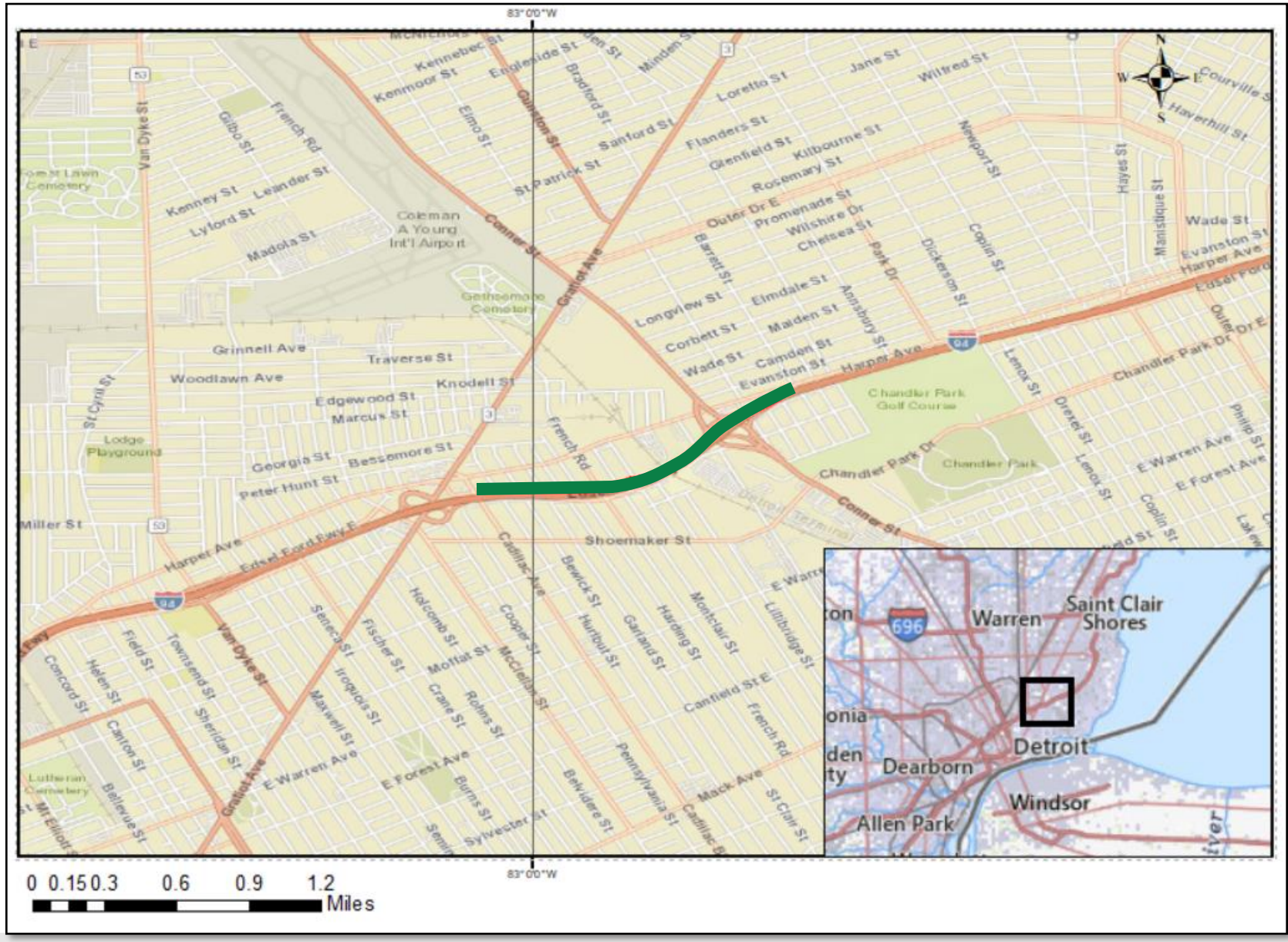
Construction Engineering & Inspection Staff

Production Staff

Project Location

The project is located in the city of Detroit, Wayne County.

The anticipated project limits are I-94 from Cadillac Avenue to Barrett Avenue.



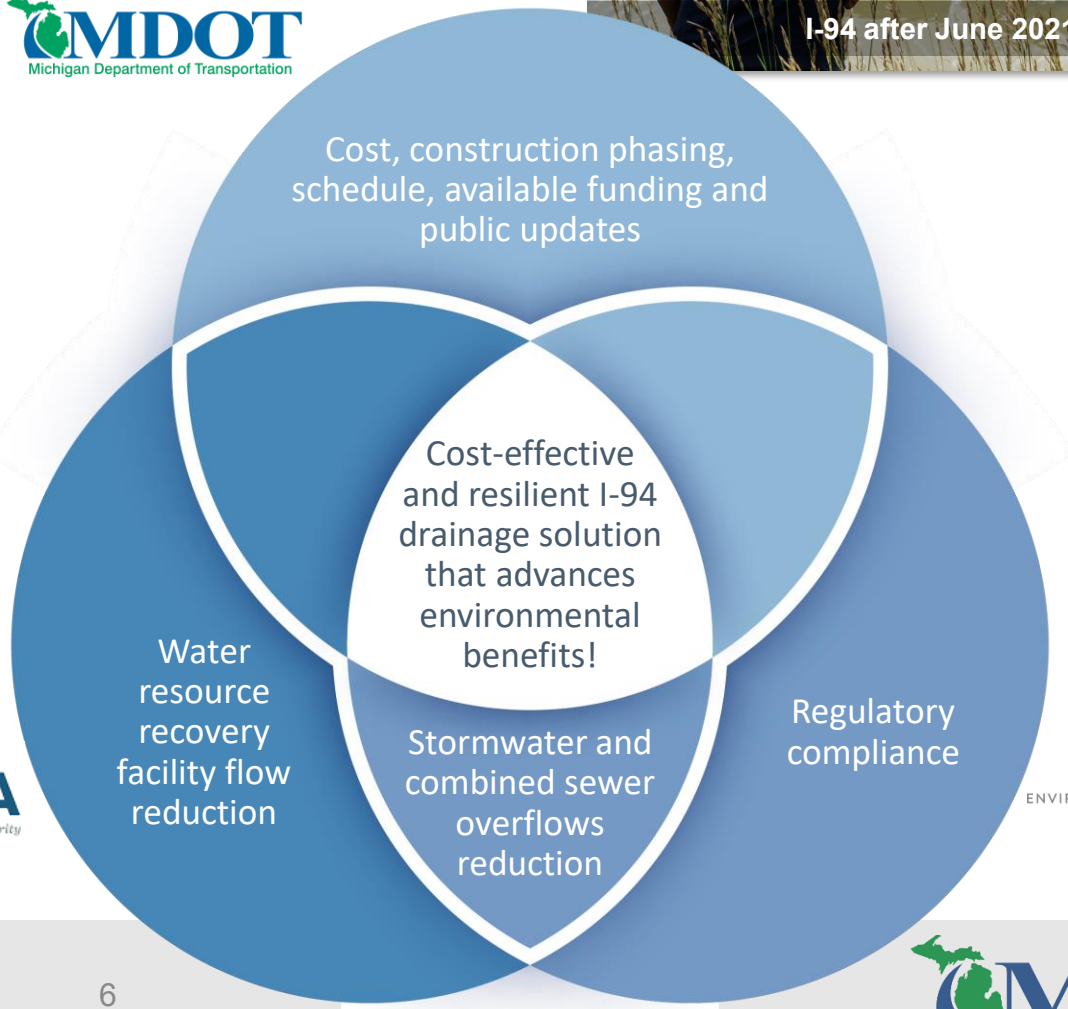
Project Background

- Develop a feasible drainage alternative to provide conveyance and storage for the 100-year, 24-hour rainfall event.
- Reduce the existing peak flows from the I-94 freeway to the Conner Creek Combined Sewer by 10 percent.
- Collaborate with GLWA, DWSD, the City of Detroit, and EGLE to support flood mitigation initiatives and reduce combined sewer overflow (CSO).
- Accommodate the I-94 freeway construction schedule, Burns Avenue to Barrett Avenue.


I-94 after June 2021 Storm

U.S. Department of Transportation Federal Highway Administration

MDOT Michigan Department of Transportation



City of Detroit Water & Sewerage Department

GLWA Great Lakes Water Authority

EGLE Michigan Department of Environment, Great Lakes, and Energy

Project Summary

Design-build best value selection

Estimated construction cost: $180 million to $200 million

Target award: September 2026

Project completion: September 2028

Drainage Tunnel Work

- 16 to 17-foot inner diameter*, 5,835 to 6,135-foot-long* tunnel sized for the 100-year 24-hour storm event
- Six shafts: launch shaft, two offline shafts, junction chamber, retrieval shaft, and pump station shaft
- Adit tunnel construction
- Site restoration, including local street reconstruction
- Drop shaft bulkheads for future near surface drainage connections

*** Diameter range and length range provided as proof of concept only. Tunnel sizing will be determined based on performance specifications as defined in the RFP.**

Pump Station Work

- Five 200 horsepower* variable frequency drive pumps, 480v three-phase
- 81 cubic feet per second (cfs) peak discharge outlet connection to the Conner Creek Combined Sewer
- Potential level sensing instrumentation of the Conner Creek Combined Sewer for pump station operation
- Instrumentation and integration into MDOT SCADA system
- Backup power supply

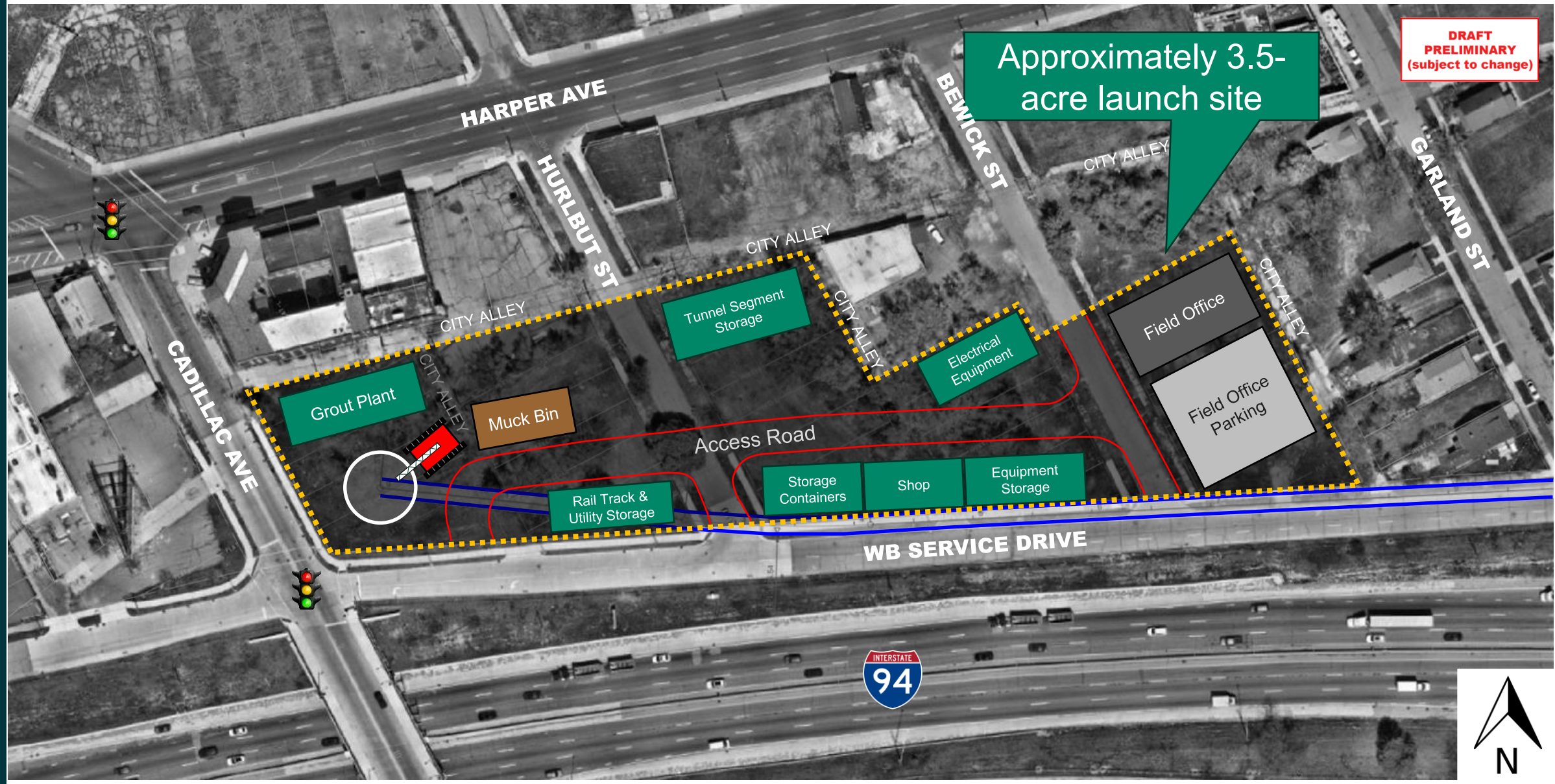
*** Pump selection and configuration provided as proof of concept only. Pump selection and configuration will be determined based on performance specifications as defined in the RFP.**

Project Map


3
Gratiot Ave
Conner Ave
Barrett Ave
I-94 PUMP STATION CONNECTION TO CONNER CREEK COMBINED SEWER
CONNER CREEK COMBINED SEWER
I-94 TUNNEL LOCATED UNDER THE WESTBOUND I-94 SERVICE DRIVE
Harper Ave
Cadillac Ave
Shoemaker St
French Rd
INTERSTATE 94
Wayne County Community College
Conner Ave
Chandler Park Golf Course
LEGEND
I-94 PACKAGE 1 PROJECT LIMITS (MDOT JURISDICTION)
PACKAGE 1 DRAINAGE TUNNEL
TUNNEL DROP SHAFT
CONNER CREEK COMBINED SEWER (GLWA JURISDICTION)

Concept Flyover

Launch Site Concept



Key Project Elements

- Maintenance of traffic general allowances and restrictions
- Subsurface conditions, anticipated and unanticipated
- Critical infrastructure crossings
- Hydraulics design criteria and required modeling
- Site security and safety

Maintenance of Traffic

- Generally allowed closures
  - Shoulder closures on westbound I-94
  - Right-lane closures on eastbound Harper Avenue
  - Westbound French Road ramp closure to westbound I-94
- Restrictions
  - Lane closures will not be permitted on Cadillac Avenue
  - Maintain access to/from I-94 and Conner Avenue at all times
  - Special events and holidays

Subsurface Conditions

- Currently 20 of the planned 29 borings completed
  - Miscellaneous fill in upper 10 feet +/-
  - Glaciolacustrine clay to depths of 120 feet with occasional wet sand layers
  - Glacial till at depths from 108 to 148 feet (encountered in two of the 20 borings to date)
  - Bedrock at depth of 131 feet (one of 20 borings)
  - Four vibrating wire piezometers and eight open standpipe monitor wells installed
- Soils within tunnel profile expected to behave as squeezing to raveling

Critical infrastructure crossings

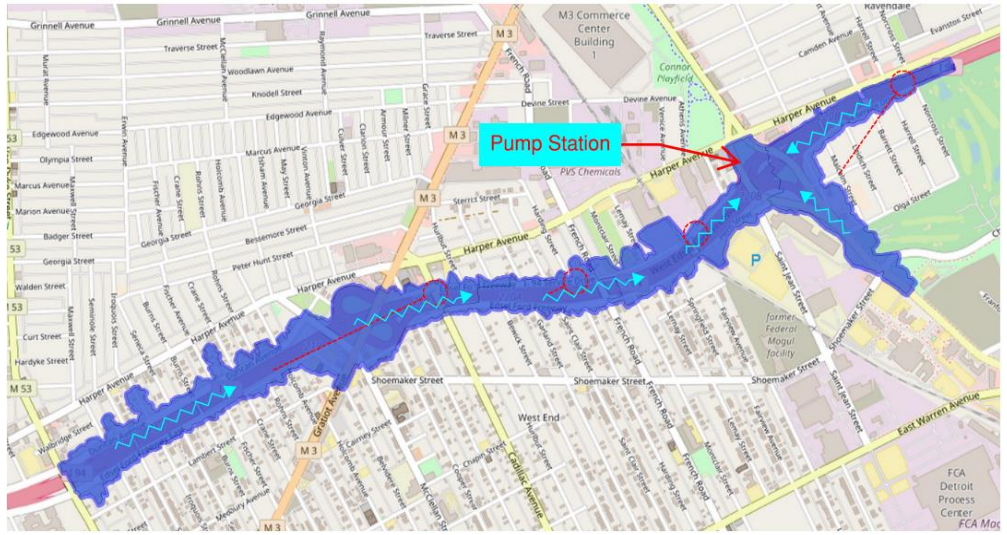
- Garland main tunnel – mining within 15-20 feet below
- Conner Creek box culvert – mining within 15-20 feet below
- ITC conduit – mining within 5 feet below
- Conrail grade separation structure over I-94

Hydraulics – Existing System

- Existing system currently drains I-94 from just west of Van Dyke Avenue to just east of Barrett Avenue
- The service drives and Conner Street discharge to the existing DWSD and GLWA systems
- 3 existing pump stations for I-94:
  - Conner Street
  - Seneca Street
  - Cadillac Avenue

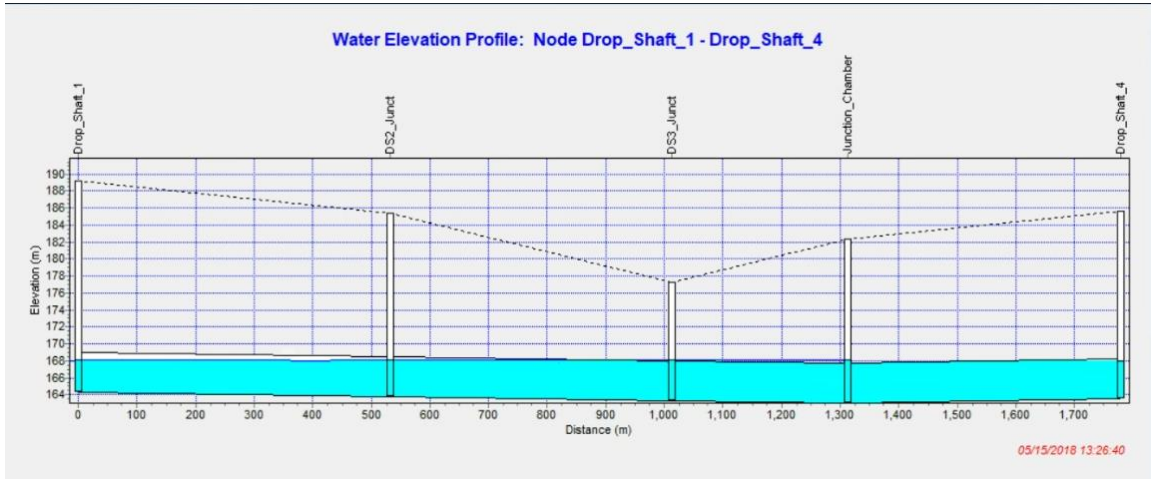
Hydraulics – Proposed System

- Memorandum of Agreement between MDOT/GLWA/City of Detroit sets the requirements for the proposed drainage system.
- Tunnel design – 100 year, 24-hour event.
- Tributary area includes I-94 from west of Van Dyke Avenue to Barrett Street, eastbound and westbound service drives and Conner Street.
- Overland flow from a surcharging DWSD local system will need to be accounted for.
- A new single-pump station located on northwest corner of I-94 and Conner Street.



Hydraulic Modeling – Proposed System

- Modified Puls Method and PCSWMM: Tunnel sizing
  - Non-disclosure agreement required for the GLWA PCSWMM boundary conditions model
- ITM (Illinois Transient Model): Tunnel sizing, surge, and venting analysis
- Flow 3-D CFD Modeling: Drop shaft and Pump station design
- Physical Modeling: Drop shaft and pump station design
- Pump selection and modeling



Site Security and Safety

- Work locations both inside and outside of limited access right of way
- Launch site is directly adjacent to multiple bus stops on Cadillac Avenue and Harper Avenue
- Secured perimeters for all work locations

Project Coordination

Private Utilities

- DTE Gas
- DTE Electric

Municipal

- City of Detroit
- Detroit Water and Sewer Department
- Great Lakes Water Authority

Construction

- Coordination with the I-94 Segment 3 Package 1 road and bridge work and other construction projects

Conrail Railroad

- Incorporate Conrail specifications CE-4, CE-6, CE-8, EMGMP
- Submit a public improvements application
- 24-hour mining operations within rail zone of influence

Project Impacts

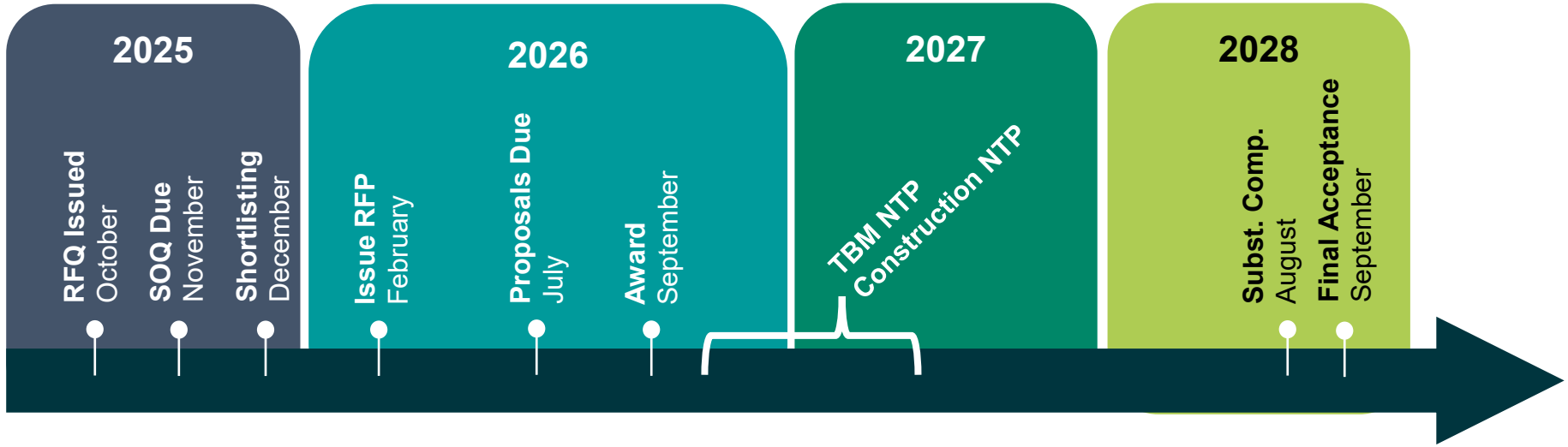
- Tunnel construction
  - Trucking, noise, dust and visual
- Temporary roadway and sidewalk closures
  - Americans with Disabilities Act (ADA) access for detour routes
- Access to transit:
  - Access to bus stops and temporary transit route impacts
- Environmental considerations:
  - Tree and shrub removals for construction
  - Air quality

Potentially Affected Interests

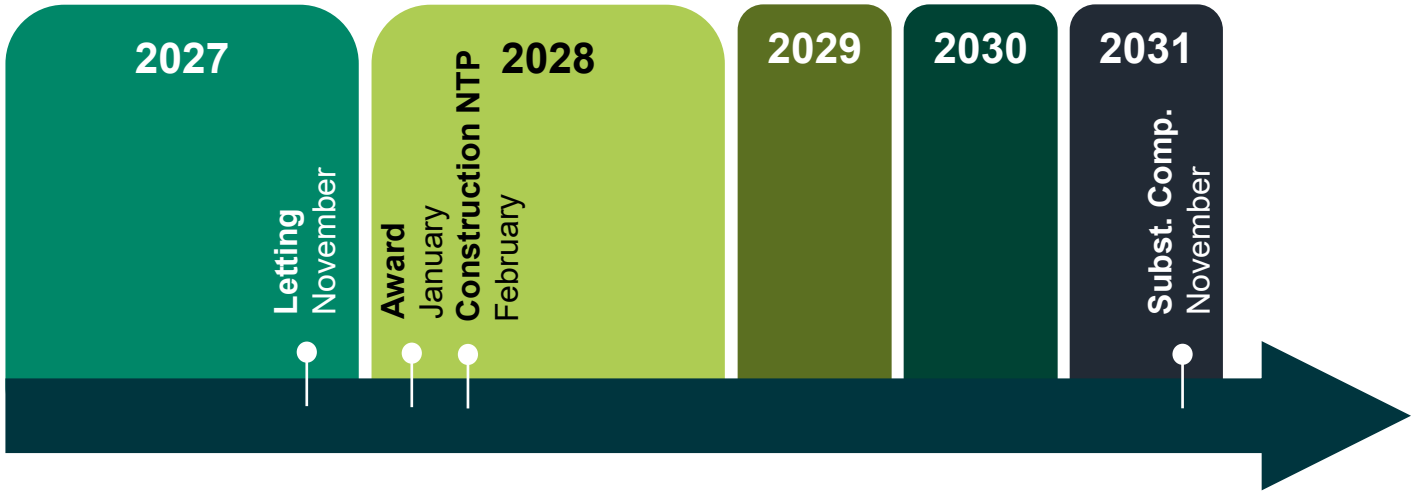
- Community residents and block clubs
- Vulnerable road users
- Transit providers such as DDOT and SMART
- Wayne County Community College District
- Local businesses
- Industrial businesses such as Stellantis, PVS Chemicals, and Lear Corp.

Project Schedule

I-94 Package 1 Drainage Tunnel DB



I-94 Package 1 Road/Bridge DBB



Anticipated Construction Qualifications

- Contractors must have completed more than three soft ground stormwater, sanitary or combined sewer tunnel projects that:
  - Were completed in the US and/or Canada with a similar complexity
  - Included geotechnical monitoring
  - Used a pressurized face TBM with a segmental tunnel liner
  - Have reached completion or substantial completion within the last 10 years as a lead contractor or major participant to the lead contractor

Establishing a Vendor Number for Tunneling Contractors

- Get access to MDOT e-Proposal through MiLogin
  - Link can be found on the cover page of Form 1313
- Submit Form 1313
  - This is the construction pre-qualification form required for contractors without an MDOT vendor number
  - Submit through MDOT e-Proposal
- Page 5 of Form 1313
  - Use work classification “N” and list completed or ongoing projects within the last five years

Anticipated Construction: Sub-Classifications Required

(FD)	(EA)	(FA)
Pumphouse	Grading, Drainage Structures and Agg. Cons	Bridges and Special Structures

Disadvantaged Business Enterprise (DBE) Goal

Percent to be determined

Design Services: Primary

- Lead Engineering Firm or a Major Participant to the Lead Engineering Firm must have completed more than three soft ground stormwater, sanitary or combined sewer tunnel projects that:
  - Were completed in the US and/or Canada with a similar scope
  - Have reached completion or substantial completion within the last 10 years as a lead designer or major participant to the lead designer

Design Services: Secondary

- Project specific qualifications demonstrating successful completion of hydraulic, venting, and transient modeling of at least three stormwater, sanitary, or combined sewer tunnel projects of similar scope and complexity, in the United States and/or Canada, and having reached completion or substantial completion within the last ten (10) years, as either the Lead Engineering Firm or a Major Participant to the Lead Engineering Firm

Design Services: Secondary

Design
Hydraulics II
Geotechnical Advanced
Roadway
Buildings

Utilities
Municipal
Pump Stations
Roadway Lighting

Traffic
Signal
Pavement Markings
Signing (Non-Freeway)
Work Zone MOT
Work Zone Mobility and Safety

Surveying
Road Design
Construction Staking
Right of Way

Management

- Project Manager
- Construction Manager
- Project Superintendent
- Tunnel Superintendent

Quality and Safety

- Construction Quality Control Manager
- Safety Manager
- Environmental Compliance Manager

Engineering

- Lead Geotechnical Engineer
- Lead Geotechnical Instrumentation Engineer
- Lead Tunnel Engineer
- Lead Tunnel Surveyor
- Lead Hydraulic Engineer
- Lead Maintenance of Traffic Engineer
- Lead Roadway Engineer
- Lead Utility Engineer
- Design Manager
- Design Quality Control Manager

Best Value Selection

Technical Proposal (150 points):
Evaluated and scored based on:

Management Approach (60 points)
- Initial Management Plan
- Initial Critical Path Method (CPM) Schedule
- Initial Risk Management Plan and Risk Register
- Initial Stakeholder Engagement Plan
- Initial Workforce Strategy and Subcontracting Plan

Technical Approach (90 points)
- TBM and Tunnel/Shaft Construction
- Hydraulic Modeling and Analyses
- Maintenance of Traffic and Staging
- Future Maintenance

Minimum score of TBD points in order to be evaluated

Price Proposal (350 points):
- Evaluated and scored based on range of bids/prices received.
- Lowest bid will receive maximum points in this category

Best Value Proposal:
- Comprised of the sum of price and technical proposals.
- Highest score will be considered the best value.
- Tiebreaker will go to the lowest bidder

The anticipated scoring criteria is subject to change. Final scoring criteria will be provided with the RFP.

I-94 DRAINAGE TUNNEL DB

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www.Michigan.gov/MDOT/Business/Contractors/InnovativeContracting/I-94-Drainage-Tunnel

I-94 Modernization Drainage Tunnel Design Build - Indsutry Forum Attendance

September 8, 2025

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